# Material Acknowledgment Statement

## APPROVAL SHEET

| | | | | | |
|---|---|---|---|---|---|
| Project name： | EGWSD1101US | | | | |
| Material code: | QK1027200535 | | | | |
| Supplier Name: | **Shenzhen Shangyuan Technology Co., Ltd.** | | | | |
| Name of material： | EGWSD1101US LTE Antenna Mount + Steel Plate | | | | |
| Material Description: | ANT/LTE+BT/EGWSD1101US/700-2690MHz+2.4G 112.4mm*17.8mm*14.7mm RO（SZ25559IB68） | | | | |
| Sample submission date: | | | | | |
| Environmental Certification: | ROHS ☑ Reach ☑ POPs ☐ Other certifications: | | | | |
| Main performance☐ | Blueprint☑ | Measurement Report☑ | Key Material☐ | Reliability report☑ | Packaging Information☑ |
| Examine and verify | Research and development department | Project department | Purchase department | Quality department | |
| | | | | | |

# Shenzhen Shangyuan Technology Co., Ltd.

## Antenna Accreditation Certificate

| | |
|---|---|
| **Customer Name: Move to** | Project Name: EGWSD1101US |
| Working frequency band:B2/4/5/12/13/66/71 | |
| **Hardware version:** | |
| **Shangyuan Material Specifications** | |

| Specifications and models | Shangyuan Measurement Code | Customer Part Number |
|---|---|---|
| Antenna bracket assembly | SZ25559IB68 | QK1027200535 |
| | | |

**Change Resume**

| Date of Preparation/Change | Change Content | Changeer | Edition |
|---|---|---|---|
| 2025/12/23 | New version release | Xu Wei | A |
| | | | |
| | | | |

**Shangyuan Co-signature Section**

| | | | | |
|---|---|---|---|---|
| Research and development | Structure： | Examine and verify： | Quality Engineer: | Ratify： |
| | Radio frequency： | Examine and verify： | | |

**Customer Co-signature Field**

| Electronic engineer | Project manager | Construction engineer | Quality Engineer |
|---|---|---|---|
| | | | |

**Shangyuan Technology (China) Co., Ltd.**
Shanghai R&D Center: 1st Floor, Building 4, No.99, Lane 215, Gaoguang Road, Qingpu District, Shanghai
Shenzhen R&D Center: 6th Floor, Building 5, Nantai Cloud Innovation Valley Center, Guangming District, Shenzhen
Chongqing R&D Center: 1F, ARM Ecological Industrial Park, No.19 Xiantao Data Valley East Road, Yubei District, Chongqing
Xi 'an R&D Center: D601, ZTE Industrial Park, No.10 Tangyan South Road, Xi' an High-Tech Zone
Huizhou Manufacturing Center: Floors 4-6, Building 8, Xiongtao Technology City, No.15 Qingli Second Road, Shuikou Street, Huicheng District, Huizhou City
Email: sales@sunnyway-iot.com Web: www.sunnyway-iot.com

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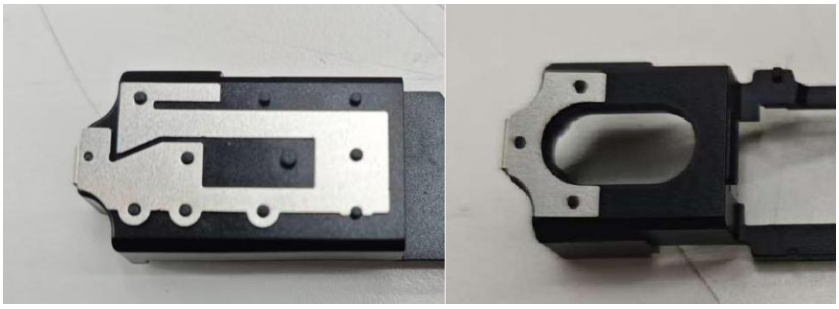
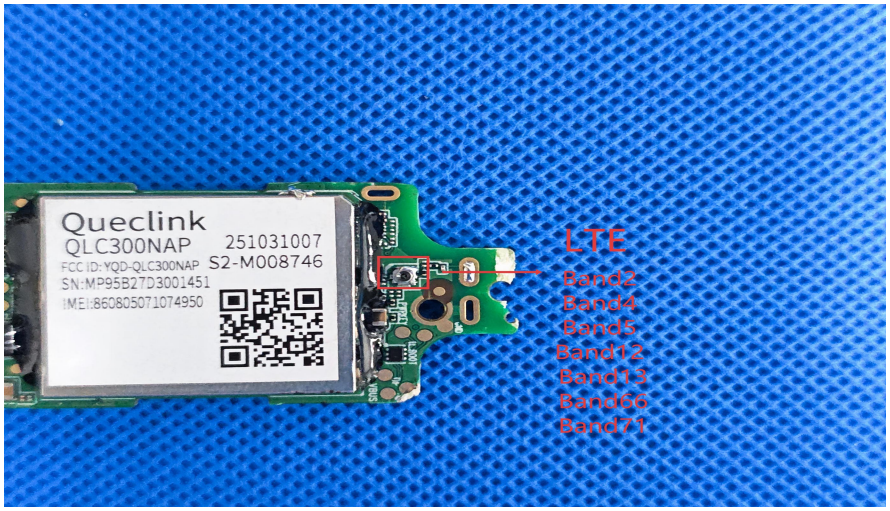
# I. Project Information

## 1.1 Prototype Diagram

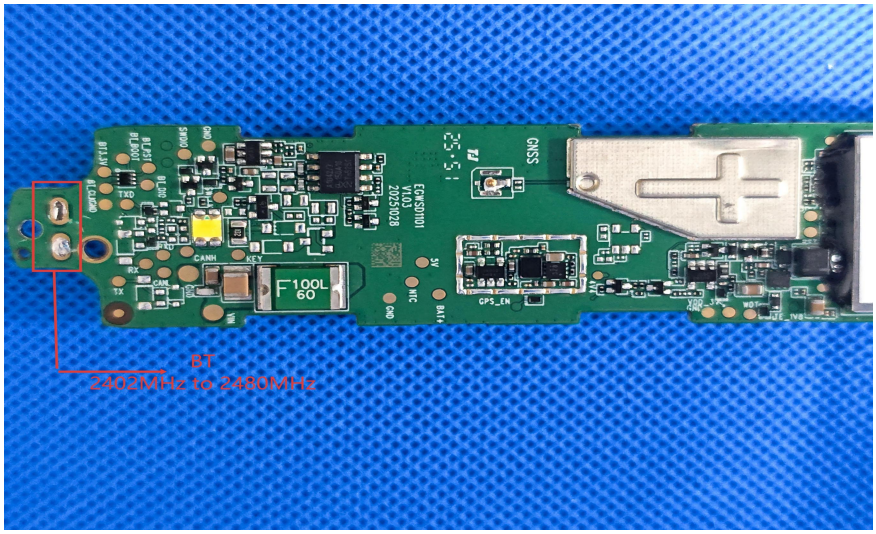
## 1.2 sample drawing



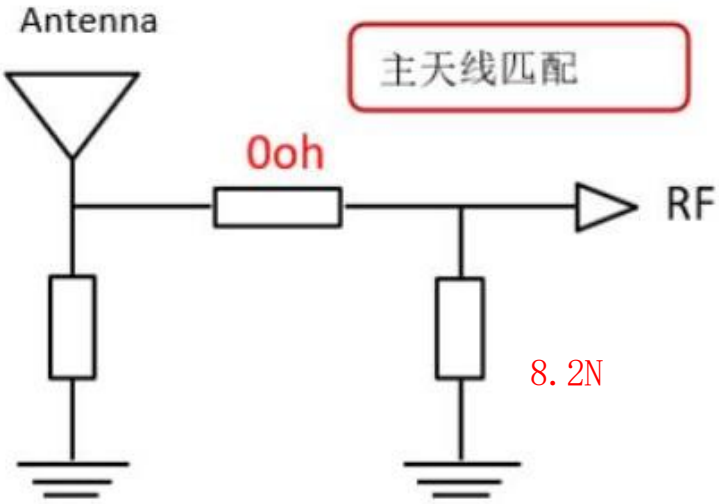
## 1.3 LTE Antenna



1.4 BT Antenna




## II. Antenna Matching Circuit



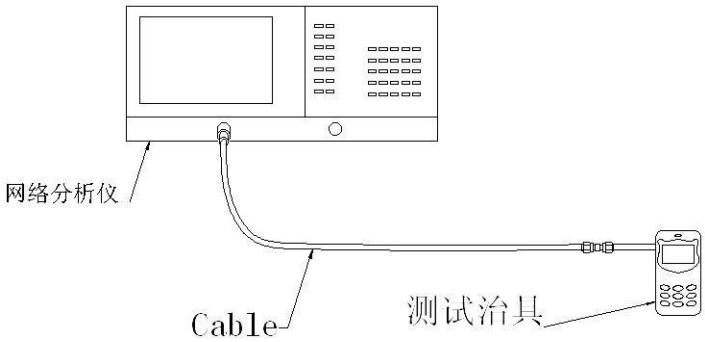
# III. Antenna S11 Parameters

## 3.1 S 11 Test Method Description

Testing equipment: Network analyzer (Agilent E5071C)

Test Method: Connect a 50-ohm CABLE from the instrument's test port, calibrate it using a calibration piece, then attach it to the SMA connector of the test fixture. Record the return loss and standing wave ratio at the corresponding frequency points.

The test schematic diagram is as follows:



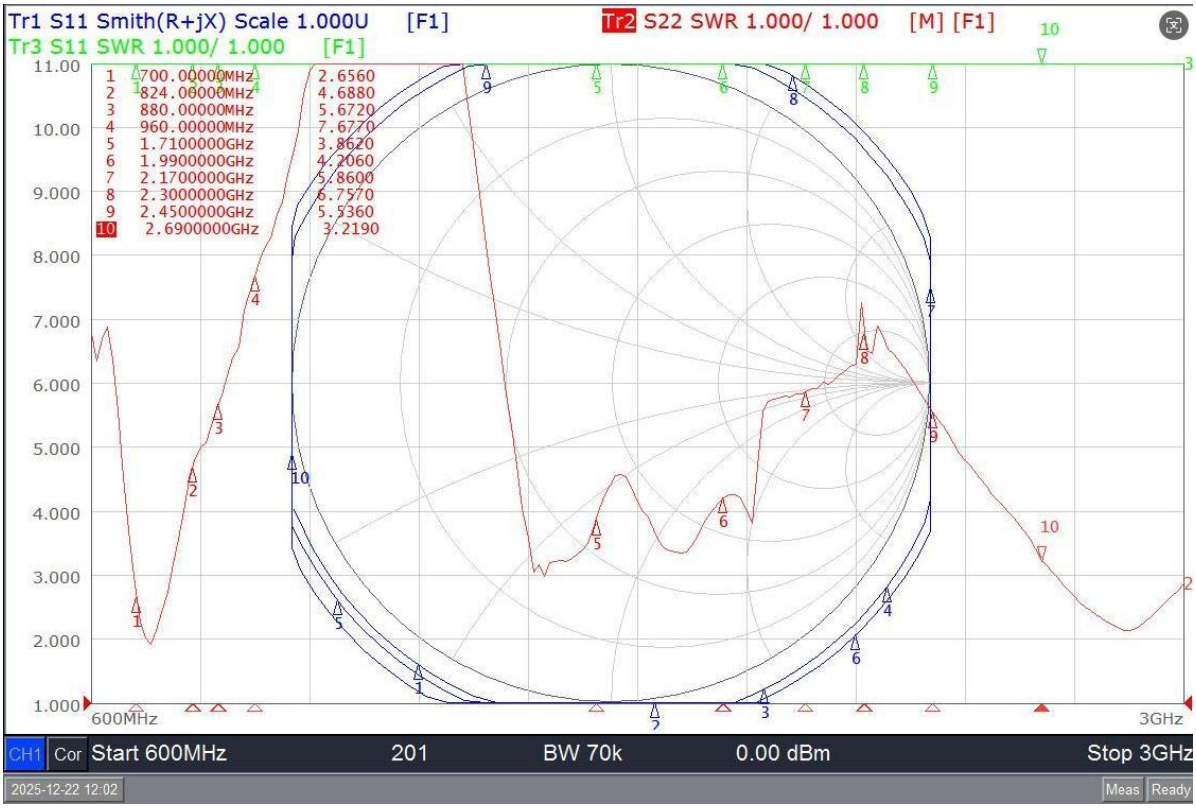

Test schematic diagram

## 3.2 S 11 Test Parameters

| Frequency (Freq.) MHz | 824 | 960 | 1710 | 2450 | 2690 |
|---|---|---|---|---|---|
| Standing wave ratio (VSWR) | 4.68 | 7.67 | 3.86 | 5.53 | 3.21 |

standing

wave ratio (VSWR) LTE antenna



BT antenna

# IV. Antenna OTA Test Data

## 4.1 Testing Environment

Testing System: Multi-probe OTA Measurement System (XH-IoT)

Test environment: Temperature 22°C ± 3°C, humidity 50% ± 15%

Testing equipment: For passive data testing, use the network analyzer R&S ZND/Agilent E5071C;

for active data testing, use the comprehensive tester Agilent 8960/CMW500/SP9500E/SP8315.

## 4.2 Antenna Efficiency and Gain

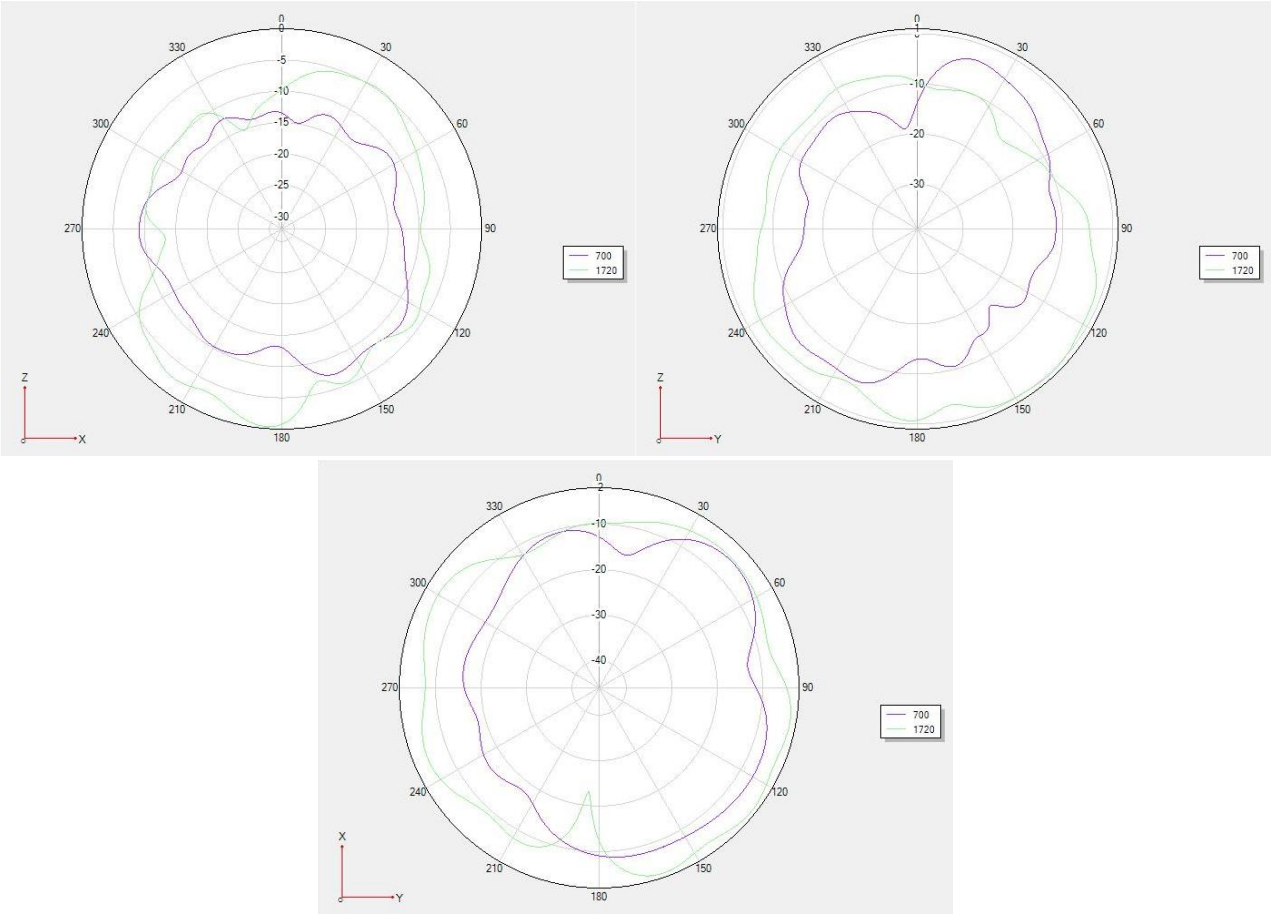
LTE antenna

| Frequency/Mhz | MaxGain/dBi | Efficiency / % | Frequency/Mhz | MaxGain/dBi | Efficiency / % |
|---|---|---|---|---|---|
| 600 | -7.11 | 14.94 | 1700 | 0.07 | 40.93 |
| 610 | -5.69 | 16.74 | 1720 | 0.18 | 42.17 |
| 620 | -5.4 | 17.22 | 1740 | 0.51 | 43.85 |
| 630 | -4.68 | 17.95 | 1760 | 0.22 | 42.07 |
| 640 | -6.8 | 18.02 | 1780 | 0.15 | 45.19 |
| 650 | -6.86 | 20.86 | 1800 | 1.4 | 47.75 |
| 660 | -6.35 | 21.53 | 1820 | 2.4 | 48.19 |
| 670 | -5.05 | 20.35 | 1840 | 2.45 | 47.1 |
| 680 | -5.38 | 20.79 | 1860 | 1.76 | 46.13 |
| 690 | -4.06 | 20.8 | 1880 | 1.37 | 42.85 |
| 700 | -3.34 | 20.51 | 1900 | 2.13 | 45.19 |
| 710 | -2.8 | 26.67 | 1920 | 1.62 | 43.25 |
| 720 | -2.69 | 27.86 | 1940 | 1.51 | 45.5 |
| 730 | -1.68 | 30.69 | 1960 | 0.99 | 42.17 |
| 740 | -1.22 | 31.41 | 1980 | 1.56 | 41.78 |
| 750 | -0.85 | 33.5 | 2000 | 1.65 | 40.64 |
| 760 | -1.4 | 29.72 | 2020 | 1.62 | 41.11 |
| 770 | -1.06 | 31.55 | 2040 | 1.26 | 39.54 |
| 780 | -1.48 | 28.51 | 2060 | -1.68 | 26.12 |
| 790 | -1.57 | 30.27 | 2080 | -1.9 | 25.94 |
| 800 | -2.74 | 25.41 | 2100 | -1.08 | 27.73 |
| 810 | -3.19 | 24.1 | 2120 | -0.53 | 29.11 |
| 820 | -3.61 | 22.28 | 2140 | -0.73 | 28.31 |
| 830 | -3.43 | 22.8 | 2160 | -0.64 | 28.91 |
| 840 | -3.04 | 23.82 | 2180 | -1.04 | 27.29 |
| 850 | -2.72 | 25.59 | 2200 | -1.15 | 27.99 |
| 860 | -2.84 | 25.82 | | | |
| 870 | -3.08 | 24.72 | | | |
| 880 | -3.09 | 24.43 | | | |
| 890 | -2.85 | 26.42 | | | |
| 900 | -3.54 | 23.5 | | | |
| 910 | -3.54 | 23.71 | | | |
| 920 | -4.07 | 21.38 | | | |
| 930 | -3.37 | 25.41 | | | |
| 940 | -3.95 | 21.43 | | | |
| 950 | -3.81 | 21.43 | | | |
| 960 | -4.27 | 18.45 | | | |

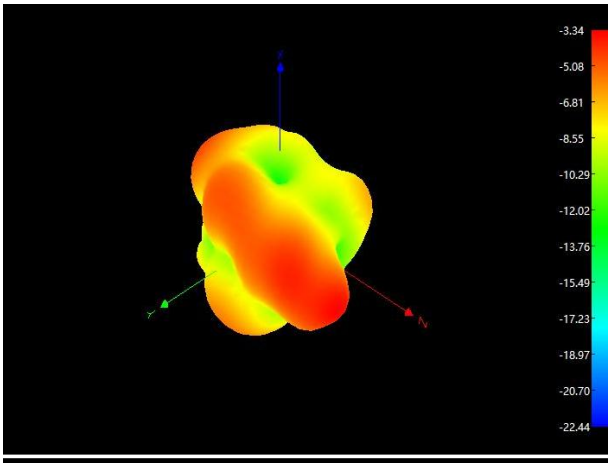
BT antenna

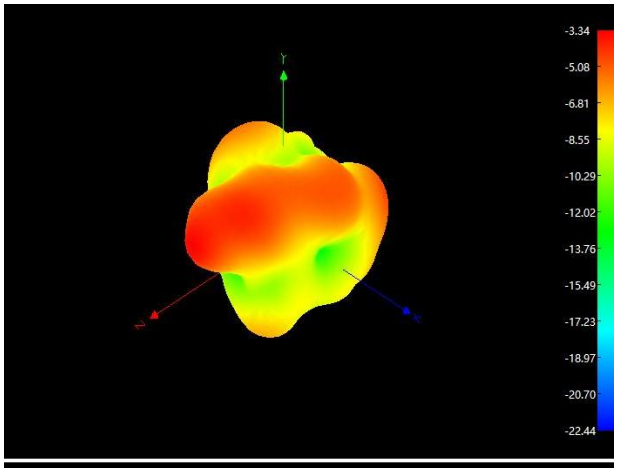
| Frequency/Mhz | Efficiency / % | MaxGain/dBi |
|---|---|---|
| 2400 | 48.75 | 2.64 |
| 2410 | 48.08 | 2.73 |
| 2420 | 50.12 | 2.93 |
| 2430 | 50.58 | 3.14 |
| 2440 | 51.88 | 3.17 |
| 2450 | 53.83 | 3.56 |
| 2460 | 56.1 | 3.73 |
| 2470 | 56.36 | 4.03 |
| 2480 | 59.43 | 4.06 |
| 2490 | 60.12 | 4.16 |
| 2500 | 60.81 | 3.89 |

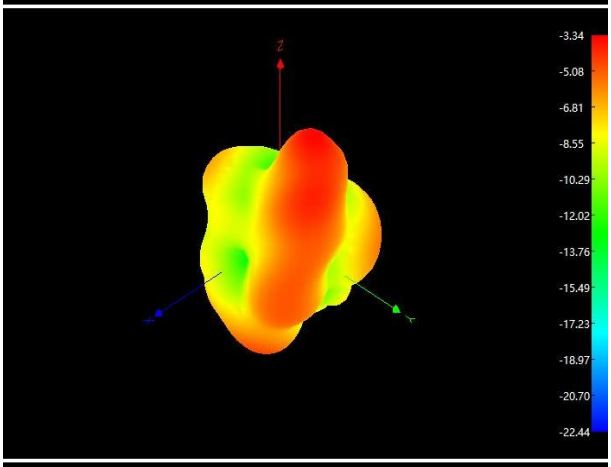
LTE antenna direction pattern

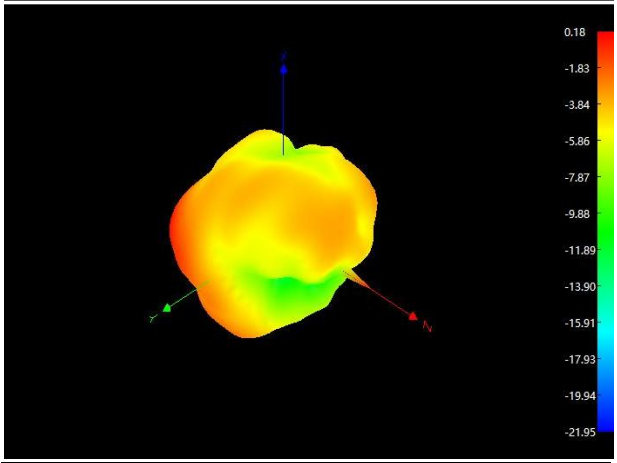


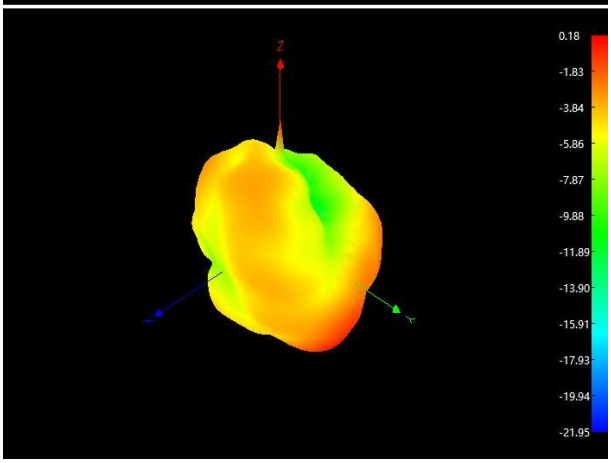
## 3D graph

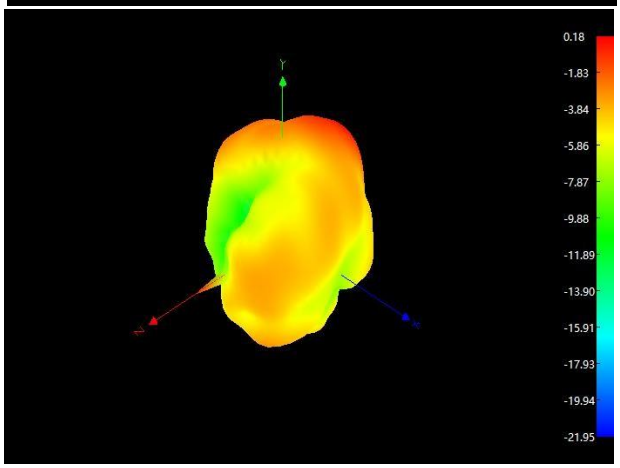


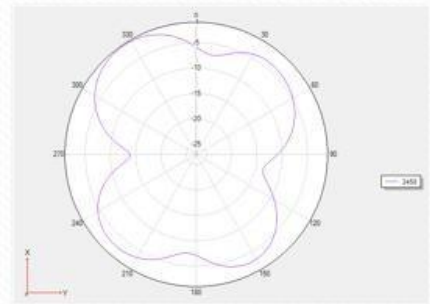



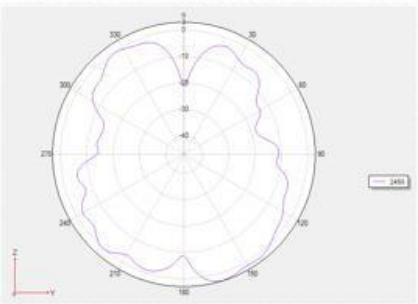



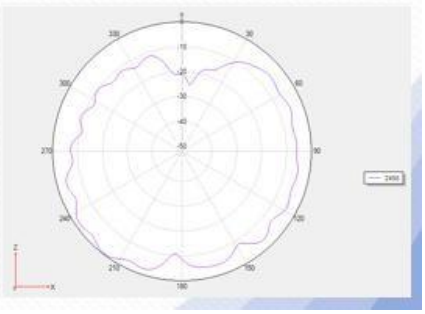



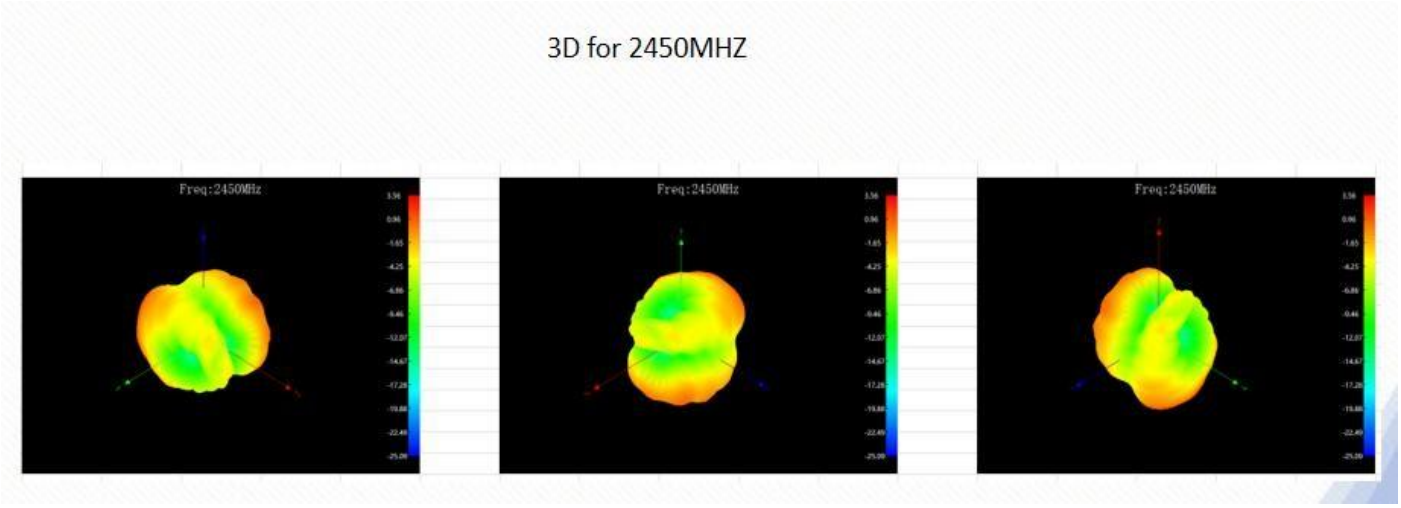




## BT antenna pattern










## 4.3 OTA Active Test Data

| Band | Frequency | TRP(dBm) |
|---|---|---|
| BAND2 | 1855 | 18.84 |
| BAND2 | 1880 | 18.34 |
| BAND2 | 1905 | 17.9 |
| BAND2 | 1985 | -92.98 |
| BAND4 | 1715 | 19.37 |
| BAND4 | 1732.5 | 19.09 |
| BAND4 | 1750 | 19.2 |
| BAND4 | 2150 | -90.14 |
| BAND5 | 829 | 17.99 |
| BAND5 | 836.5 | 17.7 |
| BAND5 | 844 | 17.64 |
| BAND5 | 889 | -92.83 |
| BAND12 | 701.5 | 17.18 |
| BAND12 | 707.5 | 17.76 |
| BAND12 | 713.5 | 17.28 |
| BAND12 | 743.5 | -91.74 |
| BAND13 | 782 | 18.45 |
| BAND13 | 751 | -91 |
| BAND66 | 1715 | 19.73 |
| BAND66 | 1745 | 19.63 |
| BAND66 | 1775 | 19.39 |
| BAND66 | 2175 | -87.46 |
| BAND71 | 668 | 15.67 |
| BAND71 | 680.5 | 15.91 |
| BAND71 | 693 | 15.67 |
| BAND71 | 647 | -88.84 |

V. Sample Machine Environment Treatment Method

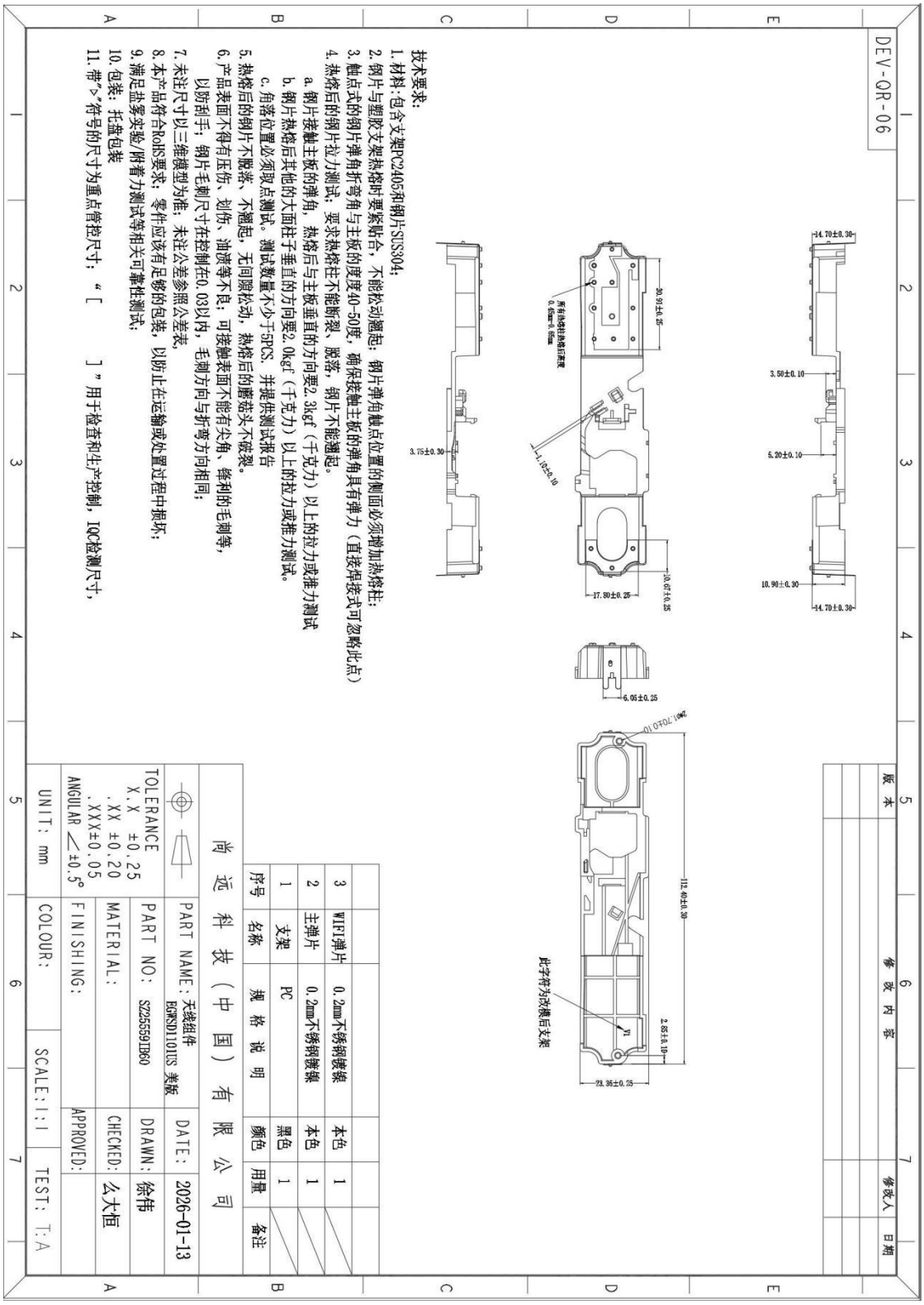
No environmental treatment required

## VI. Mass-Produced Antenna Specifications

During mass production of antennas, the standing wave ratio serves as the testing standard. Depending on the specific project requirements, the following standards apply:

| Frequency (MHz) | Mass Production Standard |
|---|---|
| 700-960 | VSWR (mass production performance) <VSWR (recognized performance) ±0.5 |
| 1710-2690 | VSWR (mass production performance) <VSWR (recognized performance) ±0.5 |

# VII. Engineering Drawings



# VIII. Reliability Test Report

SUNNYWAY

# 深圳市尚远科技有限公司

## 天线环境测试报告

客户名称：移航　　项目名称：EGWSD1101US　　尚远料号：SZ255591B68

样品数量：每项5PCS

| 测试时间 | 测试项目 | 测试条件和需求 | 测试设备 | | 测试结果 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2025.11.14 – 2025.11.15 | 低温存储 | 在温箱中（-40℃±5）保存24个小时，在常温下放2小时恢复干燥后测试，电性能（VSWR）和结构外形良好 | 标准温湿度箱 | | 1 | 2 | 3 | 4 | 5 |
| | | | | | -40℃ | -40℃ | -40℃ | -40℃ | -40℃ |
| | | | | RF | OK | OK | OK | OK | OK |
| | | | | 外观 | OK | OK | OK | OK | OK |
| 2025.11.15 – 2025.11.16 | 高温存储 | 在温箱中（85℃±5）保存24个小时，在常温下放2小时恢复干燥后测试，电性能（VSWR）和结构外形良好 | 标准温湿度箱 | | 1 | 2 | 3 | 4 | 5 |
| | | | | | +85℃ | +85℃ | +85℃ | +85℃ | +85℃ |
| | | | | RF | OK | OK | OK | OK | OK |
| | | | | 外观 | OK | OK | OK | OK | OK |
| 2025.11.16 – 2025.11.17 | 恒温恒湿试验 | 温度为60℃±5，湿度为90%-95%RH，24H后，要求结构无破损，电性能无变化。 | 标准温湿度箱 | | 1 | 2 | 3 | 4 | 5 |
| | | | | | 60℃/95% | 60℃/95% | 60℃/95% | 60℃/95% | 60℃/95% |
| | | | | RF | OK | OK | OK | OK | OK |
| | | | | 外观 | OK | OK | OK | OK | OK |
| 2025.11.17 – 2025.11.18 | 冷热冲击测试 | 高温70℃、低温-30℃各1H，32个循环，要求结构无破损，电性能无变化。 | 标准温湿度箱 | | 1 | 2 | 3 | 4 | 5 |
| | | | | | -30℃~+70℃ | -30℃~+70℃ | -30℃~+70℃ | -30℃~+70℃ | -30℃~+70℃ |
| | | | | RF | OK | OK | OK | OK | OK |
| | | | | 外观 | OK | OK | OK | OK | OK |
| 2025.11.17 – 2025.11.18 | 耐盐雾实验 | 盐雾浓度为5%的NaCl溶液，在35℃条件下，对天线连续喷雾24小时，然后移出清洗之后晾干。天线表面应无锈蚀、变色、及镀层剥落。 | 盐雾机 | | 1 | 2 | 3 | 4 | 5 |
| | | | | | 35℃/5% | 35℃/5% | 35℃/5% | 35℃/5% | 35℃/5% |
| | | | | RF | OK | OK | OK | OK | OK |
| | | | | 外观 | OK | OK | OK | OK | OK |

审核：林长青　　确认：陈小平　　测试：韦月丽

# IX. Dimension Report

## 深圳市尚远科技有限公司

Sunny-way Technology (China) Co., Ltd.

### 样品 尺寸检测报告

版本：A

| 品名 | 支架天线组件 | 机种 | EGWSD1001 US | 料号 | SZ25559IB68 | 材质 | 弹片+支架 | 厂商 | 尚 远 | 页数 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 日期 | 2025/2/2 | 1/1 |

检验工具代码:二次元-D；游标卡尺-S；塞规(尺)-C；针规-Z；环规-H；半径规-B。

| 序号 | 尺寸区域 | 标记 | 标准尺寸 | 公差 + | 公差 - | S1 | S2 | S3 | S4 | 检具 | 判定 | 备注 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 工程图纸 | 3.50 | 0.10 | 0.10 | 3.520 | 3.530 | 3.570 | 3.480 | S | PASS | |
| 2 | | 工程图纸 | 4.95 | 0.10 | 0.10 | 5.040 | 5.000 | 5.026 | 4.920 | S | PASS | |
| 3 | | 工程图纸 | 10.90 | 0.30 | 0.30 | 10.979 | 10.900 | 10.880 | 10.857 | S | PASS | |
| 4 | | 工程图纸 | 1.00 | 0.10 | 0.10 | 0.979 | 1.074 | 1.046 | 1.054 | S | PASS | |
| 5 | | 工程图纸 | 1.00 | 0.10 | 0.10 | 1.073 | 0.982 | 1.062 | 0.985 | S | PASS | |
| 6 | | 工程图纸 | 10.00 | 0.15 | 0.15 | 9.924 | 9.887 | 10.752 | 10.066 | S | PASS | |
| 7 | | 工程图纸 | 8.00 | 0.15 | 0.15 | 7.981 | 8.032 | 8.062 | 8.075 | S | PASS | |
| 8 | | 工程图纸 | 22.25 | 0.15 | 0.15 | 22.278 | 22.257 | 22.287 | 22.132 | S | PASS | |
| 9 | | 工程图纸 | 3.75 | 0.30 | 0.30 | 3.740 | 3.760 | 3.793 | 3.699 | S | PASS | |
| 10 | | 工程图纸 | 1.70 | 0.10 | 0.10 | 1.758 | 1.767 | 1.748 | 1.756 | S | PASS | |
| 11 | | 工程图纸 | 2.85 | 0.10 | 0.10 | 2.826 | 2.814 | 2.886 | 2.875 | S | PASS | |
| 12 | | 工程图纸 | 112.40 | 0.30 | 0.30 | 112.407 | 112.479 | 112.352 | 112.307 | S | PASS | |
| 13 | | 工程图纸 | 2.85 | 0.10 | 0.10 | 2.905 | 2.931 | 2.945 | 2.951 | S | PASS | |
| 14 | | 工程图纸 | 23.35 | 0.25 | 0.25 | 23.439 | 23.520 | 23.476 | 23.492 | S | PASS | |
| 15 | | 工程图纸 | 14.70 | 0.30 | 0.30 | 14.623 | 14.812 | 14.833 | 14.596 | S | PASS | |
| 16 | | 工程图纸 | 14.70 | 0.30 | 0.30 | 14.674 | 14.786 | 14.874 | 14.855 | S | PASS | |
| 17 | | 工程图纸 | 17.80 | 0.25 | 0.25 | 17.875 | 17.755 | 17.698 | 17.867 | S | PASS | |
| 18 | | 工程图纸 | 17.80 | 0.25 | 0.25 | 17.882 | 17.894 | 17.746 | 17.715 | S | PASS | |
| 19 | | 工程图纸 | 10.67 | 0.25 | 0.25 | 10.602 | 10.591 | 10.722 | 10.768 | S | PASS | |
| 20 | | 工程图纸 | 6.05 | 0.25 | 0.25 | 6.032 | 5.971 | 6.112 | 6.149 | S | PASS | |

| 外观不良描述 | 判定 |
|---|---|
| | OK |

审核： 陈小平 检验员： 陈国良 日期： 2025/11/26

# X. Rally Test

惠州市尚远科技有限公司

拉力实验

| | | | | |
|---|---|---|---|---|
| 项目名称： | EGWSD1101US天线 | | | |
| 内部料号： | SZ25559IB98 | | | |
| 测试阶段： | 加柱子试产 | | | 日期：2026.2.2 |
| 试验条件：50KGF剥离强度测试仪，拉住弹片触角对热熔点进行拉力测试 | | | | |
| | 试验前测试 | | 试验后测试 | |
| 样本编号 | 实测值：单位（Kgf） | 长度尺寸 | 性能 | 外观 |
| 1 | 3.37 | / | / | / |
| 2 | 2.53 | / | / | / |
| 3 | 3.91 | / | / | / |
| 4 | 2.55 | / | / | / |
| 5 | 3.34 | / | / | / |
| 试验结果 | | | | |

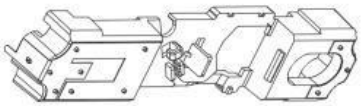
备注：

测试员：陈小平　　审批：林长青

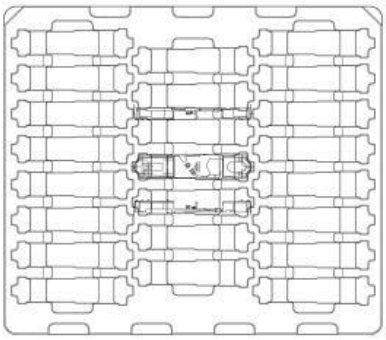
## 11、 Packing Specifications

# 包 装

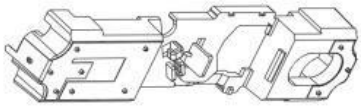
1.单个产品包装照片或2D图



2.单层包装照片或2D图



3.箱内所有层堆放后的照片或2D图



4.箱内的最小包装的图片或2D图

5.箱内的最小包装上的标签的照片或2D图

| | |
|---|---|
| 客户名称： | 上海移为通信技术股份有限公司 |
| 产品名称： | 钢片支架天线组件 |
| 订单号码： | |
| 尚远科技编码： | SZ25559IB68 |
| 移为物料编码： | |
| 数　　量： | |
| 制造商： | 深圳尚远通讯科技有限公司 |
| 检验员： | |
| 生产日期： | __年__月__日 |
| 注意事项： | 防潮、防震、防压，小心轻放 |

6.整箱封箱后的照片或2D图

7.整箱的箱表面贴的标签的面的照片或2D

| | |
|---|---|
| 客户名称： | 上海移为通信技术股份有限公司 |
| 产品名称： | 钢片支架天线组件 |
| 订单号码： | |
| 尚远科技编码： | SZ25559IB68 |
| 移为物料编码： | |
| 数　　量： | |
| 制造商： | 深圳尚远通讯科技有限公司 |
| 检验员： | |
| 生产日期： | __年__月__日 |
| 注意事项： | 防潮、防震、防压，小心轻放 |

8.整箱的箱表面贴的标签的照片或2D图

| | |
|---|---|
| 客户名称： | 上海移为通信技术股份有限公司 |
| 产品名称： | 钢片支架天线组件 |
| 订单号码： | |
| 尚远科技编码： | SZ25559IB68 |
| 移为物料编码： | |
| 数　　量： | |
| 制造商： | 深圳尚远通讯科技有限公司 |
| 检验员： | |
| 生产日期： | __年__月__日 |
| 注意事项： | 防潮、防震、防压，小心轻放 |

| | | |
|---|---|---|
| 产品料号 | SZ25559IB68 | |
| 产品名称 | 钢片支架天线组件 | |
| 产品版本 | R:A | |
| 包装方式 | 托盘＋纸箱 | |
| 箱内包装 | 层数 | 12 |
| | 每层的数量 | 14 |
| 备注 | | |
| 1.每个Tray装14pcs,<br>2.12个Tray装1箱<br>外箱尺寸：380*330*320mm | | |
| 确认者 | 徐伟 | |
| 日期 | 23/Dec/25 | |